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(51) International Patent Classification <sup>6</sup> :  <b>B29D 11/00</b>		A3	(11) International Publication Number: <b>WO 98/42497</b>  (43) International Publication Date: 1 October 1998 (01.10.98)
<p>(21) International Application Number: PCT/EP98/01698</p> <p>(22) International Filing Date: 23 March 1998 (23.03.98)</p> <p>(30) Priority Data: 08/824,860 25 March 1997 (25.03.97) US</p> <p>(71) Applicant (for all designated States except AT): NOVARTIS AG [CH/CH]; Schwarzwaldallee 215, CH-4058 Basel (CH).</p> <p>(71) Applicant (for AT only): NOVARTIS-ERFINDUNGEN VERWALTUNGSGESELLSCHAFT M.B.H. [AT/AT]; Brunner Strasse 59, A-1235 Vienna (AT).</p> <p>(72) Inventors: HERBRECHTSMEIER, Peter; Friedrich-Stoltze-Strasse 10, D-61462 Königstein (DE). BAUR, Karl-Albert; Lenzhalde 19, D-70806 Kornwestheim (DE). BIEL, Roger; Am Leisrain 27, D-65936 Frankfurt am Main (DE). GOLBY, John; Laburnum Cottage, 41 Main Street, Wymondham, Leicestershire LE14 2AG (GB). HAUCK, Roland; Am Rosenhang 2, D-78355 Hohenfels (DE). HAGMANN, Peter; Justin Kirchgässner Strasse 2, D-63906 Erlenbach am Main (DE). HEINRICH, Axel; Karl-Ulrich-Strasse 16, D-64850 Schaffhausen (DE). KRETZSCHMAR, Otto; Neuröder Weg 35, D-64683 Einhausen (DE). LANG, Anette; Hasselstrasse 25, D-63762 Grossostheim (DE). MÜLLER, Achim; Kastanienweg 39, D-63741 Aschaffenburg (DE). SCHULZ, Thomas; Buchenbusch 94, D-63263 Neu-Isenburg (DE). SEIFERLING, Bernhard; Dr. Wohlfahrt Strasse 6, D-63773 Goldbach (DE). STEFFAN, Werner; Wengerstberg 17, D-63928 Eichenbühl (DE).</p>		<p>(74) Agent: BECKER, Konrad; Novartis AG, Patent- und Markenabteilung, Lichstrasse 35, CH-4002 Basel (CH).</p> <p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</p> <p>(88) Date of publication of the international search report: 18 February 1999 (18.02.99)</p>	
<p>(54) Title: MOLDING PROCESSES</p>			
<p>(57) Abstract</p> <p>Efficient and consistent processes for manufacturing moldings, especially ophthalmic lenses such as contact lenses. The processes comprise a series of improvements, including improvements in the areas of conditions for dispensing liquid prepolymer into lens molds, male and female mold mating, reusable molds, mold cleaning, lens separation from molds (demolding), lens handling, and in-line inspection. Cyclic series of processing steps are also disclosed. Additionally, an improved molding tool is disclosed, with the molding tool including a male mold housing and a female mold housing, each of which has disposed therein a plurality of mold halves.</p>			

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# INTERNATIONAL SEARCH REPORT

Intern:	Application No
PCT/EP 98/01698	

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 B29D11/00

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 B29D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 645 235 A (JOHNSON & JOHNSON VISION PROD) 29 March 1995  see column 4 - column 5	1,2, 7-10,35, 74,75, 77,78  11
A	---	
Y	EP 0 671 249 A (CIBA GEIGY AG) 13 September 1995  see page 1, line 9 - line 18 see page 1, line 26 - line 30 see page 1, line 43 - line 48 see page 6, line 27 - line 28  ---	1,2, 7-10,35, 74,75, 77,78  -/-

Further documents are listed in the continuation of box C

Patent family members are listed in annex

\* Special categories of cited documents .

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- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
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- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

4 August 1998

Date of mailing of the international search report

22.12.98

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx 31 551 epo nl  
Fax (+31-70) 340 3016

Authorized officer

ROBERTS, P

# INTERNATIONAL SEARCH REPORT

Internat'l Application No  
 PCT/EP 98/01698

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
A	EP 0 637 490 A (CIBA GEIGY AG) 8 February 1995 cited in the application ---	1,11,35, 74
A	US 5 508 317 A (MUELLER BEAT) 16 April 1996 cited in the application ---	1,11,35, 74
A	EP 0 687 550 A (JOHNSON & JOHNSON VISION PROD) 20 December 1995 ---	1,11,35, 74
A	US 3 871 803 A (BEATTIE JOHN O) 18 March 1975 ---	1,11,35, 74
A	EP 0 183 324 A (IOR IND OTTICHE RIUNITE) 4 June 1986 ---	1,11,35, 74
A	US 5 551 663 A (BAE YOUNG C ET AL) 3 September 1996 ---	1,11,35, 74
A	FR 1 128 971 A (CLERC) 14 January 1957 ---	1,11,35, 74
A	WO 92 09421 A (BAUSCH & LOMB) 11 June 1992 -----	1,11,35, 74

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/EP 98/01698

**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely
  
2.  Claims Nos.: 67-73 because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically.  
There are no technical features in the claims so a meaningful search was not possible (Art. 17.2(b) PCT).
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims, it is covered by claims Nos.:

1-20, 35-39, 74-79

**Remark on Protest** The additional search fees were accompanied by the applicant's protest No protest accompanied the payment of additional search fees

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-20,35-39,74-79

Recycling of moulds made from polymeric materials, used for the manufacture of lenses, incl. contact lenses.

2. Claims: 21-34

Mould with a hinge and method of using the same to produce ophthalmic lenses.

3. Claims: 40-

Process for production of ophthalmic lenses by dispensing prepolymer in a humid environment.

4. Claim : 50

Process for cleaning a moulded product whilst in the mould.

5. Claim : 55

Process of centring an ophthalmic moulding on a female mould half.

6. Claim : 60

Method for locating a moulded ophthalmic lens on a mould.

7. Claim : 65

Process for inspecting peripheral areas of a contact lens.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Internal ref.	Application No.
	PCT/EP 98/01698

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0645235 A	29-03-1995	US 5080839 A AT 135627 T AU 643264 B AU 7500491 A CA 2040520 A,C CA 2149020 A CN 1058104 A,B CS 9101060 A CZ 9603176 A DE 69118009 D DE 69118009 T DK 453231 T EP 0453231 A ES 2084769 T FI 911835 A GR 91100141 A,B HK 147996 A HU 3794 A IE 74141 B IL 97841 A IL 113689 A IL 113690 A JP 4227643 A MX 174204 B PT 97378 A RU 2050285 C	14-01-1992 15-04-1996 11-11-1993 24-10-1991 18-10-1991 18-10-1991 22-01-1992 19-02-1992 15-04-1998 25-04-1996 02-10-1996 15-04-1996 23-10-1991 16-05-1996 18-10-1991 30-07-1992 09-08-1996 30-12-1996 02-07-1997 19-01-1996 15-04-1997 10-06-1997 17-08-1992 27-04-1994 31-12-1991 20-12-1995
EP 0671249 A	13-09-1995	AU 1355395 A CA 2143901 A CN 1112054 A FI 950982 A IL 112794 A JP 7256658 A NO 950860 A NZ 270623 A US 5776381 A ZA 9501825 A	14-09-1995 08-09-1995 22-11-1995 08-09-1995 08-02-1998 09-10-1995 08-09-1995 29-01-1997 07-07-1998 07-09-1995
EP 0637490 A	08-02-1995	AT 159886 T AU 682365 B AU 6753894 A AU 682872 B AU 6870194 A CA 2128158 A CA 2128915 A CN 1108999 A CN 1107411 A CZ 9401726 A CZ 9401807 A DE 59404515 D EP 0637491 A ES 2108407 T FI 943375 A FI 943496 A GR 3026004 T HU 69316 A HU 69318 A JP 7068563 A	15-11-1997 02-10-1997 27-01-1995 23-10-1997 09-02-1995 20-01-1995 30-01-1995 27-09-1995 30-08-1995 15-11-1995 17-01-1996 11-12-1997 08-02-1995 16-12-1997 20-01-1995 30-01-1995 30-04-1998 28-09-1995 28-09-1995 14-03-1995

# INTERNATIONAL SEARCH REPORT

Invention on patent family members

Internal Application No.

PCT/EP 98/01698

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
EP 0637490 A			JP 7052168 A NO 942691 A NO 942810 A NZ 264031 A NZ 264105 A PL 304314 A PL 304465 A US 5782460 A ZA 9405585 A AT 162814 T AU 2357997 A AU 680507 B AU 6880294 A BR 9403174 A CA 2129461 A CA 2221162 A CN 1108175 A CZ 9401869 A DE 59405162 D EP 0641806 A EP 0790258 A ES 2112503 T FI 943614 A GR 3026098 T HU 69048 A	28-02-1995 20-01-1995 30-01-1995 26-03-1996 26-07-1996 23-01-1995 06-02-1995 21-07-1998 01-03-1995 15-02-1998 14-08-1997 31-07-1997 16-02-1995 11-04-1995 07-02-1995 07-02-1995 13-09-1995 15-02-1995 05-03-1998 08-03-1995 20-08-1997 01-04-1998 07-02-1995 29-05-1998 28-08-1995
US 5508317 A	16-04-1996		AT 159886 T AT 162814 T AU 2357997 A AU 682365 B AU 6753894 A AU 682872 B AU 6870194 A AU 680507 B AU 6880294 A BR 9403174 A CA 2128158 A CA 2128915 A CA 2129461 A CA 2221162 A CN 1108999 A CN 1107411 A CN 1108175 A CZ 9401726 A CZ 9401807 A CZ 9401869 A DE 59404515 D DE 59405162 D EP 0637490 A EP 0637491 A EP 0641806 A EP 0790258 A ES 2108407 T ES 2112503 T FI 943375 A FI 943496 A FI 943614 A GR 3026004 T	15-11-1997 15-02-1998 14-08-1997 02-10-1997 27-01-1995 23-10-1997 09-02-1995 31-07-1997 16-02-1995 11-04-1995 20-01-1995 30-01-1995 07-02-1995 07-02-1995 27-09-1995 30-08-1995 13-09-1995 15-11-1995 17-01-1996 15-02-1995 11-12-1997 05-03-1998 08-02-1995 08-02-1995 08-03-1995 20-08-1997 16-12-1997 01-04-1998 20-01-1995 30-01-1995 07-02-1995 30-04-1998

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

Internal Application No

PCT/EP 98/01698

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 5508317 A		GR 3026098 T		29-05-1998
		HU 69316 A		28-09-1995
		HU 69318 A		28-09-1995
		HU 69048 A		28-08-1995
		JP 7068563 A		14-03-1995
		JP 7052168 A		28-02-1995
		JP 7088850 A		04-04-1995
		NO 942691 A		20-01-1995
		NO 942810 A		30-01-1995
		NO 942907 A		07-02-1995
		NO 974192 A		07-02-1995
		NZ 264031 A		26-03-1996
		NZ 264105 A		26-07-1996
-----				
EP 0687550 A	20-12-1995	AU 2055795 A		21-12-1995
		BR 9502735 A		12-03-1996
		CA 2151333 A		11-12-1995
		CZ 9501468 A		16-04-1997
		JP 8187794 A		23-07-1996
		US 5753150 A		19-05-1998
-----				
US 3871803 A	18-03-1975	US 3806079 A		23-04-1974
-----				
EP 0183324 A	04-06-1986	AU 5049685 A		05-06-1986
		JP 61132309 A		19-06-1986
-----				
US 5551663 A	03-09-1996	NONE		
-----				
FR 1128971 A	14-01-1957	NONE		
-----				
WO 9209421 A	11-06-1992	US 5158717 A		27-10-1992
		AT 148655 T		15-02-1997
		BR 9107093 A		19-04-1994
		CA 2094920 A		28-05-1992
		CN 1061931 A,B		17-06-1992
		DE 69124625 D		20-03-1997
		DE 69124625 T		25-09-1997
		EP 0560916 A		22-09-1993
		ES 2099819 T		01-06-1997
		JP 6503276 T		14-04-1994
		US 5274008 A		28-12-1993
-----				